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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,907	12/14/2000	Hironori Kikkawa	Q62301	5747

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,907

Applicant(s)

KIKKAWA, HIRONORI

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application:
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☒ Claim(s) 10 and 11 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12-14-2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

A : claims 1-9 drawn to a liquid crystal display (LCD) device according to Fig.11

B : claim 10 drawn to a LCD device according to Fig.12.

C : claim 11 drawn to a LCD device according to Fig.13.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, none of the claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

3. During a telephone conversation with Mr. Frank Osha, Attorney for the applicant, on 04-02-2002, a provisional election was made without traverse to prosecute the invention of Liquid Crystal Display Device, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10 and 11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

1. Figures 16, 17A and 17B should be designated by a legend such as -- Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 8, line 4 indicates that a compensation electrode is capable of generating an electric field, whereas on lines 8-10 on the same page 8, it is indicated that the same compensation electrode is capable of absorbing the electric field. The two statements appear to be contradicting with each other.

Appropriate correction is required.

3. The disclosure is objected to because of the following informalities: On page 9, line 6; replace 'tile' with 'tilt'. On page 14 and at several other locations, the word 'spattering' should be changed to 'sputtering'. On page 17, line 17, replace 'sinthe' with 'since the'. On page 7, line 8; 'orientation is had to be disturbed' is not clear. On page 34, line 11 replace 'therebetween' with 'there between'

Appropriate correction is required.

4. The disclosure is objected to because of the following informalities: On page 7, lines 19-20 the statement 'the effect of the electric field on the vertical electric filed is further reduced' is confusing. On page 14, lines 22-23, the

statement ' It is not necessary to form contact holes may not be necessary if they are required' is confusing. On Page 17, lines 14-16, the statement ' Similar to the above case, it is a matter of course that a parasitic horizontal electric field is generated in this case between the scanning and the pixel electrodes' is not clear. On page 24, lines 2-4, ' In this manufacturing process, an acryl base resist has been used, but it is possible to use other resists, for example, polyimide-type resists, if a flat surface is obtained' is not clear.

Appropriate correction is required.

Claim Objections

5. Claims 7 and 8 are objected to because: "They are identical".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto et al (okamoto) (U.S.Patent No. 5,825,445)

As to claim 1-2: Okamoto in Fig 3 and in (Cols. 11 and 12) discloses a OCB type liquid crystal display with an active matrix substrate 12, having TFTs 12b, signal lines and scanning lines (not shown), pixel

electrode 12a, and an opposing substrate 11 with a common electrode 11a and a liquid crystal 13 interposed between the two substrates and the rubbing directions RA of the two substrates ran parallel (same direction) and the orientation directions are limited to within 45 degrees (see Fig. 4).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(a) Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al (Ueda) (U.S. Patent No. 5,600,461 in view of Okamoto.

Okamoto discloses an OCB type liquid crystal device showing the orientation of the molecules with the same rubbing direction and two substrates both having a common electrode and a TFT substrate with signal and scanning lines with emphasis on the bending nature of these molecules. However, since TFT substrate is an integral part of any liquid crystal device, Okamoto does not go into any great length in showing the details of the TFT substrate and the relationship of the pixel electrode with the scan and signal

lines. Ueda, on the other hand, discloses in detail, an active matrix liquid crystal display device with a TFT substrate 115, having plurality of scan lines 103, plurality of signal lines 105 and pixel electrodes 109. Another opposite substrate 119 with an opposite electrode is opposed to the TFT substrate (Col 8, lines 32-33). The arrangement of the pixel electrode with respect to the signal and scan lines is shown in Figs. 8(a) and 8(b). The pixel electrode is clearly shown to be in a layer that is closer to the opposing electrode on the opposing substrate 119.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the active matrix structure of Ueda to the liquid crystal structure disclosed by Okamoto because the emphasis of the two disclosure are different. However, as recited previously, an active matrix substrate is an integral part of any liquid crystal device.

(b) Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazawa (U.S. Patent No. 6,011,604) in view of Okamoto (U.S. Patent No. 5,825,445).

Although Okamoto discloses an OCB type LCD device with TFT structure, and teaches the arrangement of the liquid crystals in the bend mode and the rubbing direction being in the same direction, he does not go into details of the TFT substrate itself. Miyazawa on the other hand, in Fig 2, discloses an active matrix LCD with a

lower substrate 24 and an upper substrate 25, plurality of signal lines 32, plurality of scanning lines 31, a common electrode 44 on the top transparent substrate, a pixel electrode 34, a compensation electrode 35 between the scanning lines 32. (Note: Though the claim 5 of the applicant claims that the compensation electrode 17 is formed in the same layer as that of the scanning line 31 or the signal line between the scanning line and the signal line, the actual representation in Fig 9, does not show this to be the case. The compensation electrode 17 is actually shown to be in the lower layer than the scanning or signal lines) similar to the teachings of Miyazawa.

The overlap of the electrode 35 is also shown to overlap electrode 34. The connection of the electrode 35 to the scanning line of the adjacent pixel region is shown in Fig. 14.

In Figs 4-11, Miyazawa also discloses the effect of varying the cell gap (i.e., adjusting the pixel electrode closer to the common electrode 44) on the electric field.

Fig. 2 also shows that the opposing surface of the active matrix substrate is formed into a flat region, by the alignment layers being flat.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the LCD structure described by Miyazawa to the OCB type

structure described by Okamoto, because incorporation of the compensation electrode into the TFT substrate and further making the opposing surfaces flat will minimize the optical leakage due to disinclinations and further suppress disturbances of the liquid crystal molecules due to nearby electric fields or irregularities of the surface orientations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-4767 for regular communications and 703-305-4767 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

PRA

May 15, 2002

William L Sikes
William L. Sikes
Supervisory Patent Examiner
Technology Center 2800